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NVIDIA Corporation (NASDAQ: NVDA), as the absolute leader in the global artificial intelligence chip sector, continues to demonstrate strong growth momentum in 2024. As of December 2024, the company's stock performance has been outstanding, with third-quarter financial results once again exceeding market expectations, and AI chip demand continuing to be "off the charts."

Key Highlights:

- Q3 FY2024 revenue reached \$57.0 billion, up 62% year-over-year
- Adjusted earnings per share of \$1.30, exceeding expectations of \$1.26
- Strong demand for Blackwell architecture chips driving rapid growth in data center business
- Deepened strategic cooperation with cloud giants including AWS, Microsoft, and Google

Investment Rating: Buy

NVIDIA was founded in 1993 and is headquartered in Santa Clara, California. The company is a global leader in graphics processing units (GPUs), artificial intelligence computing, and high-performance computing solutions.

Core Business Segments:

- Data Center Business: AI chips, server GPUs
- Gaming Business: GeForce graphics card product line
- Professional Visualization: Quadro workstation GPUs

Market Capitalization: As of December 2024, market cap exceeds \$4 trillion, making it one of the world's most valuable technology companies.

- Total Revenue: \$57.01 billion, up 62% year-over-year
- Data Center Revenue: Comprises the majority of total revenue, benefiting from strong AI chip demand
- Gaming Business Revenue: Maintained stable growth
- Adjusted Earnings Per Share: \$1.30, exceeding analyst expectations of \$1.26
- Net Profit Margin: Approximately 55.9%, reflecting the company's strong profitability
- Gross Margin: Maintained at high levels, demonstrating strong pricing power
- Current Stock Price: Approximately \$179.59 (as of latest trading day)
- Year-to-Date Performance: Up over 30%
- Two-Year Total Return: 294.85%
- Annualized Return: 98.71%

The company maintains abundant cash flow and a healthy balance sheet, providing strong financial support for continued R&D investment and strategic investments. The recent \$2 billion acquisition of Synopsys shares demonstrates the company's strategic positioning in supply chain vertical integration.

The data center business is NVIDIA's most important growth engine, primarily benefiting from the global AI infrastructure construction boom.

- GB200 Grace Blackwell Superchip: Combines 72 Blackwell GPUs and 36 Grace CPUs
- B100 and B200 Tensor Core GPUs: Optimized for AI training and inference
- Fifth-generation NVLink technology: Provides higher interconnect bandwidth

CEO Jensen Huang stated that AI chip demand is "off the charts," with the company having sufficient order backlog to maintain excellent growth. Data center revenue is expected to continue achieving 165% growth in the coming quarters.

- Launch Timeline: Expected to be officially unveiled at CES in January 2025
- Product Lineup: RTX 5090 and RTX 5080 to launch first, with other models following
- Technical Features:
 - DLSS 4 technology with multi-frame generation capabilities
 - Enhanced ray tracing and super-resolution technology
 - Significant performance improvements

While AI chips are the current focus, the gaming business remains an important revenue source and brand-building foundation for NVIDIA.

These two business segments, while relatively smaller in scale, maintain stable growth in specific vertical markets and contribute to the company's business diversification.

The Blackwell architecture represents NVIDIA's latest breakthrough in AI computing:

- Advanced Process: Utilizes the latest semiconductor manufacturing processes
- Efficiency Improvements: Significantly improved computational efficiency compared to previous generation products
- Memory Innovation: Integrated High Bandwidth Memory (HBM) technology
- AI Optimization: Specifically optimized for large language models and generative AI
- AI Model Training: Supports larger-scale model training
- Inference Acceleration: Improves response speed of AI applications
- Data Centers: Builds next-generation AI factory infrastructure

In the consumer market, NVIDIA launched DLSS 4 technology, the fourth generation of deep learning super-resolution technology:

- Multi-frame Generation: Can generate multiple intermediate frames at once
- Ray Reconstruction Enhancement: Improved ray tracing effects
- Super-resolution Technology: Enhances gaming visual quality
- Product Integration: GB200 Grace Blackwell superchips and B100 tensor core GPUs will be available on AWS platform
- AI Factory Initiative: Combining NVIDIA Blackwell GPUs with AWS Trainium chips
- Security: Leveraging AWS Nitro system and KMS key management services
- Azure Integration: Among the first partners to provide GB200 Grace Blackwell in Azure cloud services
- Healthcare: Specialized collaboration for medical and life sciences sectors
- Quantum-X800: Advanced InfiniBand networking technology collaboration
- Cloud Services: Providing NVIDIA GPU services on Google Cloud platform

- **Competitive Cooperation:** Despite Google having custom TPUs, maintains cooperation with NVIDIA
- **Sovereign AI Solutions:** Combining Oracle distributed cloud and AI infrastructure
- **Global Deployment:** Providing sovereign AI solutions globally
- **Hybrid AI Solutions:** Breakthrough collaboration announced at GTC 2024
- **Enterprise Applications:** Helping enterprises and cloud service providers leverage generative AI
- **Investment Scale:** \$2 billion purchase of shares in chip design software company Synopsys
- **Strategic Significance:** Enhanced supply chain control
- **Ownership Stake:** Holds 2.6% of Synopsys shares
- **Synergies:** Deep cooperation in engineering and design
- **MI300 Series:** AMD's main product in the AI chip market
- **Market Share:** Estimated first-year sales exceeding \$5 billion
- **Software Ecosystem:** Collaborating with Hugging Face and others to improve software ecosystem
- **Competitive Advantages:** Relatively lower prices, improved energy efficiency
- **AI Chip Strategy:** Though a late starter in AI, increasing investments
- **Manufacturing Capabilities:** Strong semiconductor manufacturing capabilities
- **Enterprise Customers:** Deep foundation in traditional enterprise markets
- **Google TPU:** Optimized for AI training and inference
- **Amazon Trainium/Inferentia:** AWS custom AI chips
- **Meta Custom Chips:** Specifically designed for Meta's AI workloads

According to industry analysis, the AI chip market is experiencing segmentation:

- **Training Market:** NVIDIA maintains absolute dominance
- **Inference Market:** More competitive, with increased custom chips and alternative solutions
- **Specialized Scenarios:** Dedicated chip solutions emerging for different application scenarios
- **Software Ecosystem:** CUDA platform and rich development tools
- **Technical Leadership:** Deep expertise in GPU architecture and AI acceleration
- **Scale Effects:** Cost advantages from large-scale production
- **Customer Stickiness:** Deep cooperation with major cloud service providers

The market has concerns about the sustainability of AI investments, with some analysts warning of a potential AI bubble. Investors remain cautious about high valuations of AI-related stocks.

NVIDIA's main revenue comes from a few large cloud service providers, and high customer concentration may pose risks.

- **Meta Shifting to Google Chips:** Reports suggest Meta is considering purchasing billions of dollars worth of Google AI chips starting from 2027
- **Customer Self-development Trend:** More large tech companies are beginning to develop custom AI chips
- **Reducing Dependencies:** Customers want to reduce reliance on single suppliers
- **New Architectures:** Potential emergence of disruptive new technology architectures

- Quantum Computing: Long-term potential challenge from quantum computing to traditional GPUs
- Capacity Constraints: Limited advanced process capacity may affect product supply
- Geopolitical Factors: US-China trade relations may impact supply chain stability
- Rising Costs: Pressure from increasing raw material and manufacturing costs

As NVIDIA's position in the AI chip market strengthens, regulatory scrutiny over potential monopoly concerns increases.

US government restrictions on exporting advanced AI chips to certain countries may affect NVIDIA's global sales.

NVIDIA is at the core of the AI revolution, and will continue to benefit from this long-term trend as AI technology becomes widely adopted.

- Strong revenue growth and profitability
- Healthy balance sheet and cash flow
- Reasonable valuation levels (P/E ratio of 24x, lower than Apple and Microsoft)
- Widespread adoption of CUDA software ecosystem
- Technical leadership in GPU architecture
- Continuous R&D investment maintaining technological leadership

Deep cooperative relationships with global major cloud service providers lay the foundation for long-term growth.

Despite reasonable relative valuation, absolute stock price levels are high and sensitive to performance expectations.

Increasing competitive pressure from AMD, Intel, and customer custom chips.

The semiconductor industry has cyclical characteristics; attention needed for industry cycle changes.

- Buy and Hold: NVIDIA, as a core beneficiary of the AI revolution, is suitable for long-term investment
- Dollar-Cost Averaging: Can buy in batches during stock price pullbacks
- Target Price Range: \$200-220
- Focus on Earnings: Closely monitor quarterly earnings and business guidance
- Technical Analysis: Watch for support around the \$180 level
- Event-Driven: Monitor product launches and partnership developments
- Position Control: Consider stock price volatility and manage positions reasonably
- Stop-Loss Settings: Set reasonable stop-loss levels to control downside risk
- Diversification: Avoid over-concentration in single technology stocks

NVIDIA Corporation, as the absolute leader in the global AI chip sector, continues to demonstrate strong growth momentum in 2024. The company once again exceeded market expectations in the third quarter, with AI chip demand remaining robust and the new generation Blackwell architecture products receiving widespread market recognition.

Core Advantages:

1. Technical Leadership: Maintains clear advantages in GPU architecture and AI computing
2. Ecosystem Advantage: CUDA platform's software ecosystem forms a strong moat
3. Market Position: Dominates the AI chip market
4. Financial Strength: Strong profitability and healthy financial condition

Major Challenges:

1. Intensified Competition: Dual pressure from traditional competitors and customer custom chips
2. Market Concerns: AI bubble and high valuation market concerns
3. Supply Chain Risks: Potential risks from geopolitics and supply chain security

Overall Assessment:

Investment Recommendation: Buy

Disclaimer: This report is for reference only and does not constitute investment advice. Investors should make prudent decisions based on their own circumstances and bear corresponding investment risks.

Report Prepared by: AI Analysis Team